

SOLVE FOR X.

How the IoT is Enabling Safer Material Handling Operations

Presented by:

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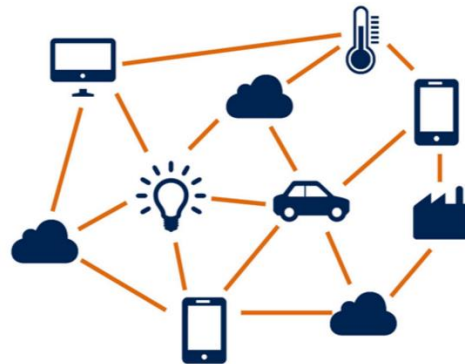
The IoT or “Internet of Things”



The **Internet of things** is the *internetworking* of physical devices, *vehicles* (also referred to as "connected devices" and "smart devices"), buildings, and other items—embedded with electronics, software, sensors, actuators, and network connectivity that *enable these objects to collect and exchange data*



The *interconnection* via the Internet of computing devices embedded in everyday objects, enabling them to *send and receive data*



Lift Truck Safety Statistics

- 100,000 forklift accidents every year
- 11 percent of all forklifts are involved in accidents each year
- 100 – the approximate number of fatalities from forklift accidents every year, in the U.S. alone

(Source: U.S. Department of Labor)

“If it can’t be measured, it can’t be managed”

- Vehicle Management Systems (VMS) are IoT technology enabled systems that provide:
 - Networked connection and communication with lift trucks, allowing collection and analysis of operational vehicle / fleet data
- With VMS, enterprises can:
 - Accurately measure lift truck safety compliance
 - Control user access to lift trucks
 - Take appropriate action to correct safety issues
 - Identify unsafe drivers
 - Reduce safety incidents

Primary Safety Benefits of VMS

- Prevent unauthorized access to vehicles
- Ensure only trained drivers operate trucks
- Monitor and reduce impacts
- Reduce anonymous damage
- Enforce pre-shift safety checklists
- Lock-out equipment with safety issues
- Reduce speeding and unsafe driving behaviors

Vehicle Access Control

- Restrict access to ensure only trained, authorized users can operate vehicles
- Lock-outs, group authorization, shift / scheduling control
- Driver training certification reporting

Electronic Safety Checklists

- Enforce compliance and eliminate paper checklists
- Ensure trucks are safe to drive
- Automatic notifications to maintenance personnel of unsafe vehicles

Impact Management

- Identify unsafe drivers
 - No more anonymous damage to facility and product!
- Auto-learning sensor monitors impacts
 - Automatic truck shutdown for severe impacts
 - Visual and audible alerts as impacts occur
 - Require safety checklist completion after impacts
 - Email / Text Message Notifications to Managers and Maintenance Personnel

Safety and Analytics

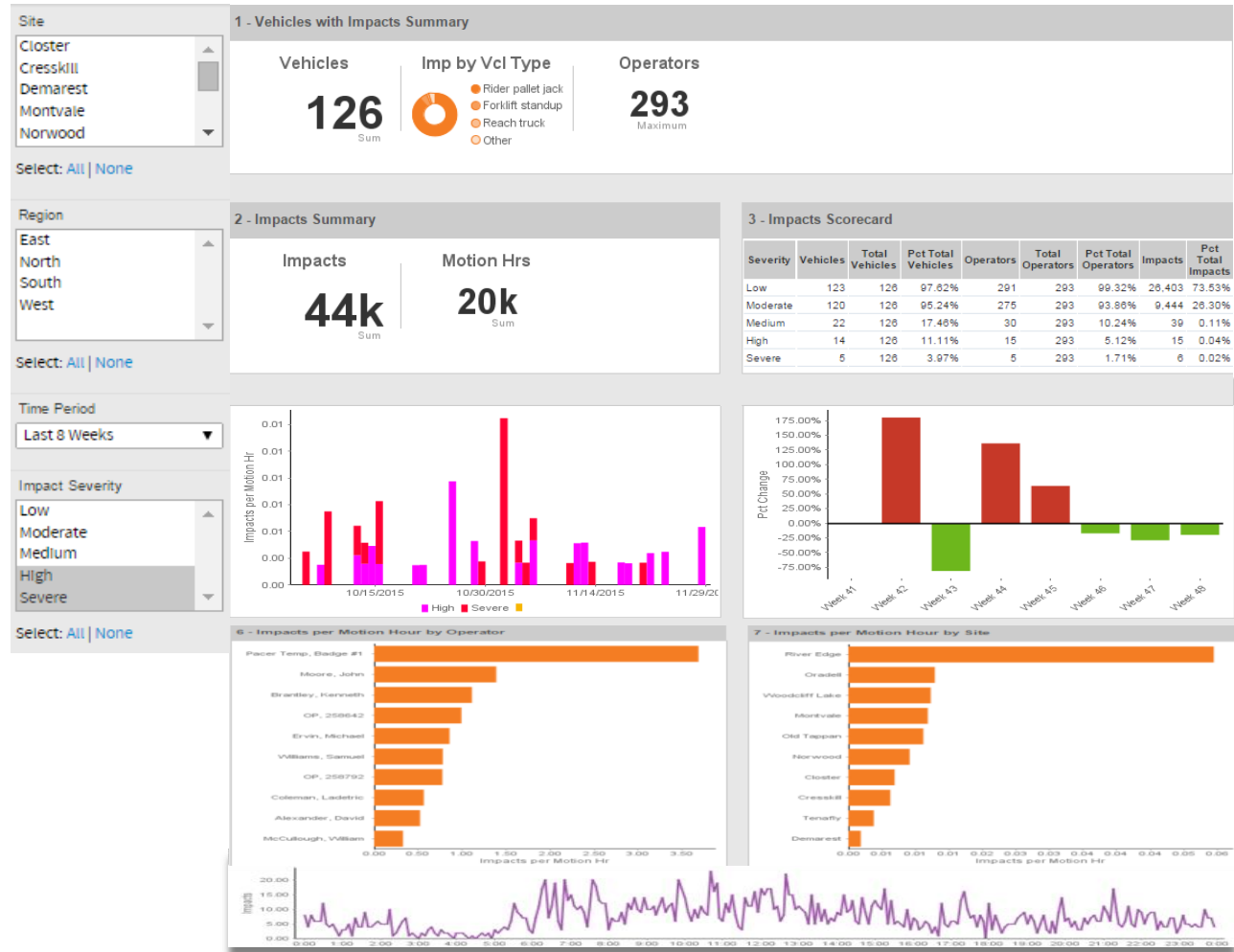
Analytics reporting allows managers to see and stay on top of safety violations, unsafe driving, and unsafe vehicles

- See which drivers are most hazardous to your operation
- Identify critical safety and vehicle issues
- Monitor compliance with safety standards
- Compare performance across sites and the enterprise

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Impacts Dashboard

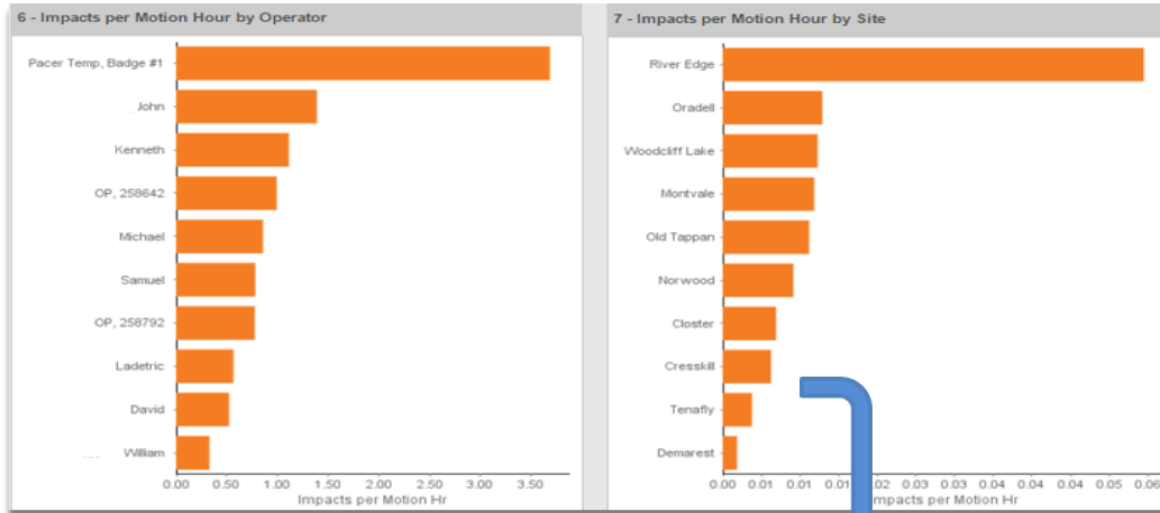
Analyze Impacts by Site, Severity, Operator, Vehicle



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Impacts Dashboard

Drill thru by Operator or Site to analyze Impacts details



Site	Date	24 Hr Time	12 Hr Time	Vehicle	Industry Vehicle Type	Custom Vehicle Type	Operator	Operator External ID	Severity	Impact Ratio
River Edge	11/29/2015	15:04:48	3:04:48PM	V396586	Rider Pallet Jack	Unknown	David	0	High	5.2000
River Edge	11/29/2015	08:48:00	8:48:00AM	V397224	Rider Pallet Jack	Unknown	UNASSIGNED	N/A	High	6.0700
River Edge	11/29/2015	07:39:24	7:39:24AM	V397224	Rider Pallet Jack	Unknown	Jackson, Billy	0	High	6.2800
River Edge	11/29/2015	06:24:48	6:24:48AM	V397224	Rider Pallet Jack	Unknown	Billy	0	High	6.0800
River Edge	11/27/2015	15:10:08	3:10:08PM	V397226	Rider Pallet Jack	Unknown	Comacho, Francisco	0	High	5.0500
River Edge	11/25/2015	12:30:10	12:30:10PM	V397224	Rider Pallet Jack	Unknown	UNASSIGNED	N/A	High	5.7800
River Edge	11/25/2015	10:05:14	10:05:14AM	V396647	Rider Pallet Jack	Unknown	Tyler	0	Severe	8.1700
River Edge	11/25/2015	08:35:28	8:35:28AM	V396836	Rider Pallet Jack	Unknown	Jose	0	Severe	8.2200
River Edge	11/25/2015	00:43:04	12:43:04AM	V396633	Rider Pallet Jack	Unknown	Antwan	0	High	5.4100
River Edge	11/23/2015	23:46:58	11:46:58PM	V396640	Rider Pallet Jack	Unknown	Ronald	0	High	7.9800
River Edge	11/22/2015	12:50:54	12:50:54PM	5023-RDAL-DPJ-01	Rider Pallet Jack	Unknown	OP, 261938	0	High	7.5400
River Edge	11/22/2015	09:18:52	9:18:52AM	V396610	Rider Pallet Jack	Unknown	OP, 258805	0	High	7.0600
River Edge	11/22/2015	07:04:36	7:04:36AM	V397224	Rider Pallet Jack	Unknown	UNASSIGNED	N/A	High	7.3400
River Edge	11/21/2015	12:28:48	12:28:48PM	V396627	Rider Pallet Jack	Unknown	OP, 258649	0	High	5.1700
River Edge	11/21/2015	10:03:32	10:03:32AM	V396655	Rider Pallet Jack	Unknown	OP, 258755	0	High	7.9200

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Compliance Dashboard

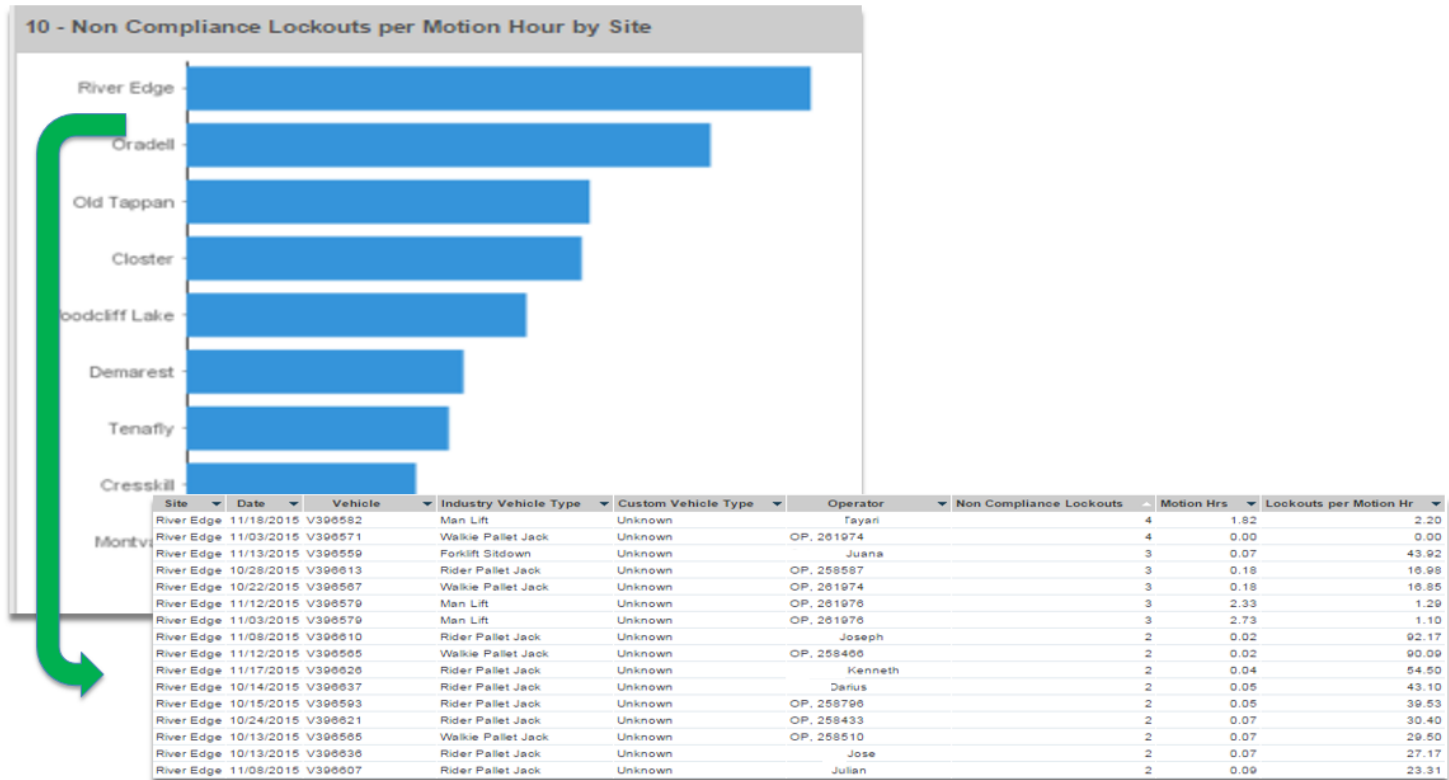
Analyze Non-Compliance Events by Site



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Compliance Dashboard

Drill to detail
by Site or Operator



In Conclusion

- Vehicle Management Systems are a global best practice for improving lift truck safety
- VMS technology has been adopted by over half of Fortune 200 companies with lift truck operations
- Critical risk management tool for global enterprises concerned with employee safety and financial risk of hazardous operating conditions

For More Information:

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